REMARKS

Applicants respectfully request reconsideration and allowance of the subject application. Claims 1-53 are pending in the application.

Information Disclosure Statement

The information disclosure statement filed November 10, 2003 is objected to for failure to provide a legible copy of:

Nishida et al.; "Congestion Control Mechanism for TCP with Packet Pair Scheme"

Khalil et al.; "Performance Considerations for TCP/IP in Wide Area Networks"

Moldeklev et al.; "How a Large ATM MTU Causes Deadlock in TCP data Transfers"

Submitted with the present response is an information disclosure statement and legible copies of the above references.

Claim Rejection under 35 U.S.C. § 102

Claims 1-17, 19-34, 36-51 and 53 stand rejected under 35 U.S.C. § 102 as being anticipated by U.S. patent No. 6,292,834 to Ravi et al.. With regard to Claim 1, the rejection alleges that Ravi discloses each element at Col. 3, Lines 1-41. The relied upon passage in Ravi reads as follows:

The present invention provides efficient transmission of multimedia streams from a server to a client computer over a diverse computer network including local area networks (LANs) and wide area networks (WANs) such as the internet. Examples of multimedia streams provided to the client computer include a compressed video stream, a compressed audio stream, and an annotation stream with pointers to textual/graphical data in the form of HTML pages.

In one embodiment, the client computer includes a playout buffer, and the transmission rate is dynamically matched to the available bandwidth capacity of the network connection between the server and the client computer.

If a playtime of the playout buffer, which is one measure of the number of data packets currently in the playout buffer, drops below a dynamically computed Decrease_Bandwidth (DEC_BW) threshold, then the transmission rate is decreased by sending a DEC_BW message to the server.

Conversely, if the number of packets remaining in the playout buffer rises above a dynamically computed Upper Increase_Bandwidth (INC_BW) threshold and does not drop below a Lower INC_BW threshold for at least an INC_BW wait period, then the transmission rate is incremented.

In this embodiment, the transmission rate is selected from among a predetermined set of discrete bandwidth values. However the invention is also applicable to a system in which the transmission rate is selected from within a continuous range of bandwidth values.

In another embodiment, in addition to responding to variations in network connection capacity, the client computer also determines an average client computational capacity. Accordingly, if the average client computational capacity is less than the network capacity, the lower of the two capacities is the determining one, thereby avoiding a playout buffer overrun.

These and other advantages of the present invention will become apparent upon reading the following detailed descriptions and studying the various figures of the drawings.

In particular, Ravi discloses dynamically matching the available bandwidth capacity of the network connection between the server and the client computer based upon the playtime of the playout buffer or the playtime of the playout buffer and the computation rate of the client computer. See: Col. 3, lines 11-25; Figures 4, 5A-5E, 6A, 6B, 7A, 7B, 8, 9, 10 and 11; Col. 7, line 2, through Col. 11, line 41. Furthermore, Applicants assert that Ravi discloses increasing or decreasing the bandwidth only after first determining one or more performance variables (e.g., playout time of the playout buffer or the playout time of the playout buffer and the computational rate of the client computer). Each increase or decrease in the

bandwidth is based upon determining the performance variables. The transmission rate is not

increased or decreased unless it is based upon a determination of the performance variables.

By contrast to the disclosure of Ravi, Applicants' amended Claim 1 reads as follows:

connecting to a server to receive streaming content at a first rate;

receiving a portion of the streaming content at the first rate;

requesting the server to send a particular amount of future

streaming content at a second rate without determining the rate at which

the portion of the streaming content is received;

receiving the particular amount of future streaming content at an

actual rate that is greater than the first rate and less than or equal to the

second rate;

determining if the actual rate is viable for receiving the streaming

content; and

if the actual rate is viable for receiving the streaming content,

requesting the server to send remaining streaming content at a rate that is

not greater than the actual rate.

According to Claim 1, the bandwidth rate is switched from the first rate to the second rate

without determining the rate at which the portion of the streaming content is received. The

viability of the actual rate is determined when the particular amount of future streaming data

is being received. However, Ravi discloses that every increase or decrease in the

transmission rate is based upon a determination of the playout time of the playout buffer, or

upon a determination of the playout time of the buffer and the computational rate of the client computer. Furthermore, the determination is based upon the playout time of the playout buffer, or upon a determination of the playout time of the buffer and the computational rate of the client computer, and not based upon the transmission rate. Accordingly, the requirement of Ravi that every increase or decrease in the transmission rate is based upon a determination of the playout time necessarily precludes the limitation in Claim 1 of "requesting the server to send a particular amount of future streaming content at a second rate without determining the rate at which the portion of the streaming content is received."

Applicants also respectfully maintain that Ravi does not disclose "requesting the server to send **a particular amount** of future streaming content at a second rate." The element "a particular amount" limits the streaming of the content at the second rate to a specific quantity of content data, such as n second of streaming data, x number of data packets, y bytes of data or the like as defined at page 23, line 23 through page 24, line 13 of the present application. Ravi does not disclose the limitation of "a particular amount." Instead, those skilled in the art appreciate that Ravi discloses increasing or decreasing the transmission rate for an **arbitrary amount of data or an indefinite amount of data**. As a result the method of Ravi incurs a constant computation load because the playout time, or the playout time and the computational rate of the client computer, is repeatedly being determined to evaluate whether to increase or decrease the transmission rate. Accordingly, Applicants submit that Claim 1 contains limitations not disclosed by Ravi. Furthermore, Claims 2-15 are also allowable by virtue of their dependency on Claim 1, as well as the

additional elements they recite. Applicants therefore respectfully request that the rejection of Claims 1-15 be withdrawn.

With regard to amended Claim 16, Applicants respectfully assert that Ravi fails to disclose the method:

receiving a request from a client to stream content to the client at a

first transmission rate;

streaming content to the client at the first transmission rate;

receiving a request from the client to increase the streaming to a

second transmission rate for a specified amount of content data;

streaming the specified amount of content data to the client at the

second transmission rate; and

automatically resuming streaming content, after the specified

amount of content data, to the client at the first transmission rate.

In particular, Applicants respectfully assert that Ravi does not disclose "receiving a request from the client to increase the streaming to a second transmission rate for **a specified amount of content data**." The element "a specified amount of content data" limits the streaming of the content at the second rate to a specific quantity of content data, such as n second of streaming data, x number of data packets, y bytes of data or the like as defined at page 23, line 23 through page 24, line 13 of the present application. Ravi does not disclose the limitation of "a specified amount." Instead, those skilled in the art appreciate that Ravi discloses increasing or decreasing the transmission rate for an **arbitrary amount of data or**

an indefinite amount of data. Accordingly, Ravi also does not disclose "**streaming the specified amount of content data** to the client at the second transmission rate."

Applicants also respectfully assert that Ravi does no disclose "<u>automatically</u> resuming streaming content, <u>after the specified amount of content data</u>, to the client at the first transmission rate." Instead, Ravi discloses that every increase or decrease in the transmission rate is based upon a determination of the playout time of the playout buffer, or upon a determination of the playout time of the buffer and the computational rate of the client computer. Thus, Ravi does not disclose automatically receiving the remaining streaming content at the first rate after the particular amount of future streaming data has been received. Accordingly, Applicants submit that Claim 16 contains limitations not disclosed by Ravi. Furthermore, Claims 17-23 are also allowable by virtue of their dependency on Claim 16, as well as the additional elements they recite. Applicants therefore respectfully request that the rejection of Claims 16-23 be withdrawn.

With regard to amended Claim 24, Applicants respectfully assert that Ravi fails to disclose:

an interface to a network that provides at least a connection to a server;

a control module configured to receive streaming content from the server and to request the server to modify a first streaming rate to a second streaming rate for a specified amount of streaming content data without determining the first streaming rate;

a bandwidth measurement module configured to determine an

actual streaming rate resulting from the request to modify the first

streaming rate to the second streaming rate, and to determine the adequacy

of the streaming at the actual streaming rate; and

wherein the control module is further configured to request the

server to stream remaining streaming content at a rate that is not greater

than the actual streaming rate if the bandwidth measurement module

determines that the actual streaming rate is adequate for streaming the

remaining streaming content.

In particular, Applicants respectfully assert that Ravi does not disclose "to request the server

to modify a first streaming rate to a second streaming rate for **a specified amount of**

streaming content data." Instead, those skilled in the art appreciate that Ravi discloses

increasing or decreasing the transmission rate for an **arbitrary amount of data or an**

indefinite amount of data. Accordingly, Ravi also does not disclose requesting that the

streaming content be transmitted at the second rate for a **specified amount of streaming**

content data.

In addition, Ravi discloses that every increase or decrease in the transmission rate is

based upon a determination of the playout time of the playout buffer, or upon a determination

of the playout time of the buffer and the computational rate of the client computer. However,

this necessary limitation of Ravi precludes the limitation in Claim 24 that the control module

is configured to "request the server to modify a first streaming rate to a second streaming rate

for a specified amount of streaming content data <u>without determining the first streaming</u> <u>rate</u>." Accordingly, Applicants submit that Claim 24 contains limitations not disclosed by Ravi. Furthermore, Claims 25-32 are also allowable by virtue of their dependency on Claim 24, as well as the additional elements they recite. Applicants therefore respectfully request that the rejection of Claims 24-32 be withdrawn.

With regard to amended Claim 33, Applicants respectfully assert that Ravi fails to disclose:

a network interface configured to provide at least a connection to a client over a network;

one or more multi-bitrate files, wherein each multi-bitrate file stores two or more versions of streaming content, each version being configured for transmission at a different streaming rate; and

a control module configured to identify a request from the client to modify a first streaming rate at which a version of the streaming content stored in a multi-bitrate file is being transmitted to the client to a second streaming rate for a particular amount of streaming content data.

In particular, Applicants respectfully assert that Ravi does not disclose "one or more multi-bitrate files, wherein each multi-bitrate file stores two or more versions of streaming content, each version being configured for transmission at a different streaming rate." Ravi only discloses transmission of multimedia streams. There is also no mention anywhere in Ravi

that each multi-bitrate file stores two or more versions of streaming content, or each version being configured for transmission at a different streaming rate.

In addition, Applicants respectfully assert that Ravi does not disclose "a control module configured to identify a request from the client to modify a first streaming rate at which a version of the streaming content stored in a multi-bitrate file is being transmitted to the client to a second streaming rate for **a particular amount of streaming content data**." Instead, those skilled in the art appreciate that Ravi discloses increasing or decreasing the transmission rate for an **arbitrary amount of data or an indefinite amount of data**. Accordingly, Ravi also does not disclose a control module configured to identify a request ... to modify a first streaming rate ... to a second streaming rate for **a particular amount of streaming content data**. Thus, Applicants submit that Claim 33 contains limitations not disclosed by Ravi. Furthermore, Claims 34-37 are also allowable by virtue of their dependency on Claim 33 as well as the additional elements they recite. Applicants therefore respectfully request that the rejection of Claims 33-37 be withdrawn.

With regard to amended Claim 38, Applicants respectfully assert that Ravi fails to disclose:

requesting a server to transmit content file data over a network at a

first transmission rate;

while receiving a portion of the content file data at the first

transmission rate, requesting the server to transmit a specific portion of the

content file data over the network at a second transmission rate;

receiving the specific portion of the content file data from the server at an actual transmission rate which is less than or equal to the second transmission rate;

determining if the network can viably support transmission of the content file data at the actual transmission rate during receipt of the specified portion of the content file data;

if the network can viably support transmission of the content data at the actual transmission rate, requesting the server to transmit subsequent content file data at a rate that is not greater than the actual transmission rate;

if the network cannot viably support transmission of the content data at the actual transmission rate, automatically receiving subsequent content file data at the first transmission rate; and

wherein the subsequent content file data is content file data that is transmitted after the specified portion of content file data has concluded transmission.

In particular, Applicants respectfully assert that Ravi does not disclose "while receiving a portion of the content file data at the first transmission rate, requesting the server to transmit **a specific portion of the content file data** over the network **at a second transmission rate.**" Instead, those skilled in the art appreciate that Ravi discloses increasing or decreasing the transmission rate for an **arbitrary amount of data or an indefinite amount of data.**

Accordingly, Ravi also does not disclose requesting the server to transmit a specific portion of the content file data ... at a second transmission rate.

In addition, Ravi does not disclose that "if the network cannot viably support transmission of the content data at the actual transmission rate, **automatically receiving subsequent content file data at the first transmission rate.**" Again, Ravi discloses that every increase or decrease in the transmission rate is based upon a determination of the playout time of the playout buffer, or upon a determination of the playout time of the buffer and the computational rate of the client computer. Thus, Ravi does not disclose automatically receiving the remaining streaming content at the first rate after the specific portion of the content file data has been received. Accordingly, Applicants submit that Claim 38 contains limitations not disclosed by Ravi. Furthermore, Claims 39-48 are also allowable by virtue of their dependency on Claim 38 as well as the additional elements they recite. Applicants therefore respectfully request that the rejection of Claims 38-48 be withdrawn

With regard to amended Claim 49, Applicants respectfully assert that Ravi fails to disclose:

transmitting content file data to a client over a network at a first

transmission rate;

receiving a request from the client to transmit a particular amount

of content file data to the client at a second transmission rate;

transmitting the particular amount of content file data to the client

at the second transmission rate;

automatically transmitting content file data subsequent to the

particular amount of content file data to the client at the first transmission

rate.

In particular, Applicants respectfully assert that Ravi does not disclose "receiving a request

from the client to transmit **a particular amount of content file data** to the client at a second

transmission rate." Ravi also does not disclose "transmitting **the particular amount of**

content file data to the client at the second transmission rate." Instead, those skilled in the

art appreciate that Ravi discloses increasing or decreasing the transmission rate for an

arbitrary amount of data or an indefinite amount of data.

Furthermore, Applicants respectfully assert that Ravi does not disclose

"automatically transmitting content file data, **subsequent to the particular amount of**

content file data, to the client **at the first transmission rate."** Again, Ravi discloses that

every increase or decrease in the transmission rate is based upon a determination of the

playout time of the playout buffer, or upon a determination of the playout time of the buffer

and the computational rate of the client computer. Thus, Ravi does not disclose

automatically transmitting the content data file at the first transmission rate after the

particular amount of content data has been sent at the second transmission rate. Furthermore,

Claims 50-53 are also allowable by virtue of their dependency on Claim 49, as well as the

additional elements they recite. Applicants therefore respectfully request that the rejection

of Claims 49-53 be withdrawn.

Claim Rejection under 35 U.S.C. § 103

Claims 18, 35 and 52 stand rejected under 35 U.S.C. § 103 as being obvious in view of the combination of U.S. Patent No. 6,292,834 to Ravi and U.S. Patent No. 6,785,288 to Enns. Applicants respectfully assert that Claims 18, 35 and 52 depend from Claims 16, 33 and 49 respectively and incorporate all the limitation therein. As shown above, independent Claims 16, 33 and 49 are patentable over Ravi. Furthermore, Enns does not teach or suggest any of the limitation of independent Claims 16, 33 and 49 as discussed above. Accordingly, Claims 18, 35 and 52 are also allowable by virtue of their dependency on Claim 16, 33 and 49 respectively, as well as the additional elements they recite. Applicants therefore respectfully request that the rejection of Claims 18, 35 and 52 be withdrawn.

Conclusion

Claims 1-53 are in condition for allowance. Applicant respectfully requests prompt allowance of the subject application. If any issue remains unresolved that would prevent allowance of this case, the Examiner is requested to contact the undersigned attorney to resolve the issue.

Respectfully Submitted,

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